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decomposed plant material, the overburden exerted increasing heat and organic matter. Over millions of years, these physical conditions caused the carbon, hydrogen, oxygen, nitrogen, sulfur, and inorganic mineral coal plant matter. The coal formed in layers known as seams.

Plant matter changes into coal in stages. In each successive stage, higher heat from the accumulating overburden increases the carbon content of it and drives out more of its moisture content. Scientists classify coal according to *carbon content*, or the amount of carbon the coal produces when heated conditions. Higher grades of coal have a higher fixed carbon content.

II MODERN USES OF COAL

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Eighty-six percent of the coal used in the United States is burned by electric plants to produce electricity. When burned, coal generates energy in the form of heat. In a power plant that uses coal as fuel, this heat converts water into steam, which is used to spin the shaft of a turbine. This spinning shaft drives a generator that converts the mechanical energy of the rotation into electric power (see Electric Motors and Steam Engine).

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Coal is also used in the steel industry. The steel industry uses coal by first converting it into coke, a hard substance consisting of nearly pure carbon.